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Sheet 1 of 9

FORM PTO-1449

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

MATERIAL INFORMATION STATEMENT

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ATTY. DOCKET NO.
WU101 CIPSERIAL NO.
08/126,505APPLICANT
John P. Atkinson, et al.FILING DATE
September 24, 1993GROUP
~~481~~ 1812

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
SW	AA	4,883,784	11/28/89	Kaneko	514	8	
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FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
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SW	AL	WO 89/01041	02/09/89	PCT	G12N	1910		
	AM							
	AN							
	AO							
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OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

SW	AR	Adams, et al., "Contribution of the Repeating Domains of Membrane Cofactor Protein (CD46) of the Complement System to Ligand Binding and Cofactor Activity," <u>J. Immunology</u> 147:3005-3011 (1991)
	AS	Alsens, et al., "Localization of the complement-component-C3b-binding site and the cofactor activity for factor I in the 38kDa tryptic fragment of factor H," <u>Biochem. J.</u> 389 (1984)

Wu and Farries, "Separation of self from non-self in the complement system," Immun. Today 8:212 (1987)

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OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

SW	AR	Ballard, et al., "A Polymorphism of the Complement Regulatory Protein MCP (Membrane Cofactor Protein or gp45-70)" J. of Immun. 138:3850-3855 (1987)
	AS	Ballard, et al., "Biochemical Characterization of Membrane Cofactor Protein of the Complement System," J. of Immun. 141:3923-3929 (1988)
	AT	Birmingham and Cosio, "Characterization of the Baboon Erythrocyte C3b-Binding Protein," J. of Immun. 142:3140-3144 (1989)
	AR	Birmingham, et al., "Primary Sequence of an Alternatively Spliced Form of CR1," J. of Immunol. 691 (1994)
	AS	Bora, et al., "Structural Gene for Human Membrane Cofactor Protein (MCP) of Complement Maps to Within 100 kb of the 3' End of the C3b/C4b Receptor Gene," J. Exp. Med. 169:597-602 (1989)
✓	AT	Brauer, et al., "Use of C6-Deficient Rats to Evaluate the Mechanism of Hyperacute Rejection of Discordant Cardiac Xenografts," J. of Immunol. 151:7240-7248 (1993)
	AR	Cavacchi, (1989)
SW	AS	Caras, et al., "Signal for Attachment of a Phospholipid Membrane Anchor in Decay Accelerating Factor," Science 238:1280 (1987)
	AT	Caras, J.W., et al., "Cloning of decay-accelerating factor suggests novel use of splicing to generate two proteins," Nature (1987) 325:645
	AR	Carel, et al., "Structural Requirements for C3d/g/Epstein-Barr Virus Receptor (CR2/CD21) Ligand Binding, Internalization and Viral Infection," J. Biol. Chem. 265:12293-12299 (1990)
	AS	Chung, L.P., et al., "Molecular cloning and characterization of the cDNA coding for C4b-binding protein, a regulatory protein of the classical pathway of the human complement system," Biochem. J. 230:133 (1985)
	AT	Clemenza, et al., "Generation of a Functional Domain of CR1 with Increased Ligand Binding and Cofactor Activities," Mol. Immunol. 1993 Vol. 30, No. SUPPL. 1, pp. 4
	AR	Cole, J.L., et al., "Identification of an additional class of C3-binding membrane proteins of human peripheral blood leukocytes and cell lines," Proc. Natl. Acad. Sci. USA 82:859-863 (1985)
	AS	Covne, et al., "Mapping of Epitopes, Glycosylation Sites, and Complement Regulatory Domains in Human Decay Accelerating Factor," J. Immunology 149:2906-2913 (1992)
✓	AT	Dykman, et al., "Polymorphism of human erythrocyte C3b/C4b receptor," Proc. Natl. Acad. Sci. USA 80:1698-1702 (1983)

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~~1014~~ 1812

OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

SW	AR	Dykman, et al., "Structural Heterogeneity of the C3b/C4b Receptor (CR1) on Human Peripheral Blood Cells," J. Exp. Med. 157:2160-2165 (1983)
	AS	Farries, et al., "Competition for Binding Sites on C3b by CR1, CR2, MCP, Factor B and Factor H," Complement Inflamm 7:30-41 (1990)
	AT	Fodor, et al., "A Novel Bifunctional Chimeric Complement Inhibitor That Regulates C3 Convertase and Formation of the Membrane Attack Complex," J. of Immunol. 4135-4138 (1995)
	AR	Ghebrehiwet, B., et al., "Purification and Immunochemical Characterization of Soluble Forms of the Two Types of C1Q Receptors," Complement and Complement Receptors Abstract 2751 (1994)
	AS	Goulet-Zalc, et al., "Marmoset Red Blood Cell Receptor for Membrane-Associated Complement Components Is Not Related to Human CR1: Partial Characterization of the C3-Binding Proteins Responsible for the Spontaneous Rosette Formation between Marmoset Red Blood Cells and Human Leukocytes," Cell. Immun. 109:282-294 (1987)
	AT	Hillarp, A., and Dahlback, B., "Cloning of cDNA coding for the β chain of human complement component C4b-binding protein: Sequence homology with the α chain," Proc. Natl. Acad. Sci. USA 87:1183 (1990)
	AR	Himmelfarb, et al., "Soluble complement receptor 1 inhibits both complement and granulocyte activation during ex vivo hemodialysis," J. Lab. Clin. Med. 126:392-400 (1995)
	AS	Hogg, N., et al., "Identification of an anti-monocyte monoclonal antibody that is specific for membrane complement receptor type one (CR1)," Eur. J. Immunol. 14:236-243 (1984)
	AT	Holers, et al., "Human C3b- and C4b-regulator proteins: a new multi-gene family," Immun. Today 6:188 (1985)
	AR	Hourcade, et al., "Duplication and Divergence of the Amino-terminal Coding Region of the Complement Receptor 1 (CR1) Gene," J. of Biol. Chem. 265:974-980 (1990)
	AS	Hourcade, D., et al., "Analysis of the Human Regulators of Complement Activation (RCA) Gene Cluster with Yeast Artificial Chromosomes (YACs)," Genomics 12:289-300 (1992)
	AT	Hourcade and Atkinson, "The Regulators of Complement Activation (RCA) Gene Cluster," Progress in Immun. VII:171 (1989)
	AR	Janatova, et al., "Disulfide Bonds Are Localized within the Short Consensus Repeat Units of Complement Regulatory Proteins: C4b-Binding Protein," Biochem. 28:4754-4761 (1989)
	AS	Joyner, et al., "Production of a mutation in mouse En-2 gene by homologous recombination in embryonic stem cells," Nature 338:153-156 (1989)
✓	AT	Kalli, et al., "Interaction of iC3b with Recombinant Isotypic and Chimeric Forms of CR2," J. Immunology 147:590-594 (1991)

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~~1814~~ 1812

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SW	AR	Kalli, et al., "Mapping of the C3b-binding Site of CR1 and Construction of a (CR1) ₂ -Fab', Chimeric Complement Inhibitor," <u>J. Exp. Med.</u> 174:1451-1460 (1991)
	AS	Kim, "Isolation and Identification of Trophoblast Lymphocyte Cross-reactive (TLX) Antigens from Human Lymphocytes," <u>J. of Biol. Chem.</u> 264:9780-9784 (1989)
	AT	Klickstein, L.B., et al., "Human C3b/C4b Receptor (CR1)," <u>J. Exp. Med.</u> 165:1095 (1987)
	AR	Krych, et al., "Sites within the complement C3b/C4b receptor important for the specificity of ligand binding," <u>Proc. Natl. Acad. Sci. USA</u> 88:4353-4357 (1991)
	AS	Krych, et al., "Identification of a C3b Binding Domain of Human Complement C3b/C4b Receptor (CR1)," <u>FASEB J.</u> 4(7) (1990)
	AT	Kunkel, T.A., et al., "Rapid and Efficient Site-Specific Mutagenesis without Phenotypic Selection," <u>Methods Enzymol</u> 154:367-382 (1987)
	AR	Liszewski, M. Kathryn, et al., "Control of the Complement System," <u>Adv. in Immunol.</u> in Press 1994 61:291-203 Review
	AS	Lovell-Badge, "Introduction of DNA into embryonic stem cells," <u>Teratocarcinomas and embryonic stem cells, a practical approach</u> , 153 (ed. E.J. Robertson, IRL Press; 1987)
	AT	Lublin, et al., "The Gene Encoding Decay-Accelerating Factor (DAF) is Located in the Complement-Regulatory Locus on the Long Arm of Chromosome," <u>J. Exp. Med.</u> 165:1731-1736 (1987)
	AR	Lublin, D.M., et al., "Molecular Cloning and Chromosomal Localization of Human Membrane Cofactor Protein (MCP)," <u>J. Exp. Med.</u> 168:181 (1988)
	AS	Lublin and Atkinson, "Decay-Accelerating Factor: Biochemistry, Molecular Biology, and Function," <u>Ann. Rev. Immunol.</u> 7:35-58 (1989)
	AT	Lublin and Atkinson, "Decay-Accelerating Factor and Membrane Cofactor Protein," <u>Curr. Topics in Micro. and Immun.</u> 153:123 (1989)
	AR	Makrides, S.C., et al., "Cell Surface Expression of the C3b/C4b Receptor (CR1) Protects Chinese Hamster Ovary Cells from Lysis by Human Complement," <u>J. Biol. Chem.</u> 267:24754-24761 (1992)
	AS	McNearney, et al., "Membrane Cofactor Protein of Complement is Present on Human Fibroblast, Epithelial, and Endothelial Cells," <u>J. Clin. Invest.</u> 84 (1989)
✓	AT	Madof, M.E., et al., "Cloning and characterization of cDNAs encoding the complete sequence of decay-accelerating factor of human complement," <u>Proc. Natl. Acad. Sci. USA</u> (1987) 84:2007

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OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

SW

AR

Moore, "CRRP: A Guinea Pig Protein, Identified by Sequence Homology to Human CR1, Which Contains Two Short Consensus Repeat Motifs and Appears Not To Be Transmembrane or Secreted," J. of Immunol. 147:3615-3622 (1991)

AS

Moore, M.D., et al., "Molecular cloning of the cDNA encoding the Epstein-Barr virus/C3d Receptor (complement receptor type 2), of human B lymphocytes," Proc. Natl. Acad. Sci. USA 84:9194 (1987)

AT

Nickells, et al., "Identification of Complement Receptor Type 1-Related Proteins on Primate Erythrocytes," J. of Immunol. 2829 (1995)

AR

Nickells, et al., "Identification of 65-70kDa CR1 Molecules from Primate E," Complement and Complement Receptors FASEB Journal Abstract 2749, (1994)

AS

O'Shea, J.J., et al., "Evidence for Distinct Intracellular Pools of Receptors for C3b and C3bi in Human Neutrophils," J. Immunol. 134:2580-2587 (1985)

AT

Ogata, et al., "Murine C4b-Binding Protein," J. Immunology 150:2273-2280 (1993)

AR

Post, et al., "Membrane Cofactor Protein of the Complement System: Alternative Splicing of Serine/Threonine/Proline-rich Exons and Cytoplasmic Tails Produces Multiple Isoforms that Correlate with Protein Phenotype," J. Exp. Med. 174:93-102 (1991)

AS

Potter, et al., "Enhancer-dependent expression of human K immunoglobulin genes introduced into mouse pre-B lymphocytes by electroporation," Proc. Natl. Acad. Sci. USA 81:161 (1984)

AT

Pruitt, et al., "The Effect of Soluble Complement Receptor Type 1 on Hyperacute Xenograft Rejection," Transplantation 52:868-873 (1991)

AR

Purcell, et al., "The human cell-surface glycoproteins Hvy-m5, membrane co-factor protein (MCP) of the complement system, and trophoblast leucocyte-common (TLX) antigen, are CD46," Immun. 70:155-161 (1990)

AS

Remington, The Science and Practice of Pharmacy Nineteenth Edition, Volumes I and II, (1995) pp viii, xv, xvi.

AT

Ripoche, J., et al., "The complete amino acid sequence of human complement factor H," Biochem. J. 249:593 (1988)

AR

Seva, T., et al., "Purification and Functional Analysis of the Polymorphic Variants of the C3b/C4b Receptor (CR1) and Comparison with H, C4b-Binding Protein (C4bp), and Decay Acceleration Factor (DAF)," J. Immunology 135:2661 (1985)

AS

Seva and Atkinson, "Functional properties of membrane cofactor protein of complement," Biochem. J. 264:581 (1989)

AT

Seva, et al., "Membrane Cofactor Protein (MCP or gp 45-70): A Distinct Complement Regulatory Protein with a Wide Tissue Distribution," XIIth Internl. Complement Workshop, Chamonix, France, SEPT. 18-24, 1987 COMPLEMENT (1987) 4:3-4, 225.

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GROUP

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OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

8W	AR	Seya, et al., "Distribution of membrane cofactor protein of complement on human peripheral blood cells. An altered form is found on granulocytes," <u>Eur. J. Immunol.</u> 18:1289-1294 (1988)
	AS	Seya, et al., "Purification and Characterization of a Membrane Protein (gp45-70) that is a Cofactor for Cleavage of C3b and C4b," <u>J. Exp. Med.</u> 163:837 (1986)
	AT	Seya, "membrane cofactor protein (MCP), " <u>Complement Regulation</u> (1988)
	AR	Southern and Berg, "Transformation of Mammalian Cells to Antibiotic Resistance with a Bacterial Gene Under Control of the SV40 Early Region Promoter," <u>J. Mol. Appl. Gen.</u> 1:327-341 (1982)
	AS	Stafford, et al., "Normal polymorphic variations and transcription of the decay accelerating factor gene in paroxysmal nocturnal hemoglobinuria cells," <u>Proc. Natl. Acad. Sci. USA</u> 85:880-884 (1988)
	AT	Subramanian, V., et al., "Ligand Binding by Chimpanzee Erythrocyte Complement Receptor," <u>Complement and Complement Receptors</u> , <u>FASEB Journal Abstract</u> 4447 (1994)
	AR	Weiss, J.J., et al., "Structure of the Human B Lymphocyte Receptor for C3d and the Epstein-Barr Virus and Relatedness to Other Members of the Family of C3/C4 Binding Proteins," <u>J. Exp. Med.</u> 167:1047 (1988)
	AS	Wong and Fearon, "p65: A C3b-Binding Protein on Murine Cells that Shares Antigenic Determinants with the Human C3b Receptor (CR1) and is Distinct from Murine C3b Receptor," <u>J. of Immun.</u> 134:4048 (1985)
	AT	Wong, "Structural and Functional Correlation of the Human Complement Receptor Type 1," <u>J. of Investigative Dermatology</u> 94:64S-67S (1990)
	AR	Wong, et al., "Identification of a partial cDNA clone for the human receptor for complement fragments C3b/C4b," <u>Proc. Natl. Acad. Sci. USA</u> 82:7711-7715 (1985)
	AS	Wong and Farrell, "Proposed Structure of the F' Allotype of Human CR1," <u>J. of Immunol.</u> 146:656-662 (1991)
	AT	Yu, et al., "Identification of a Third Component of Complement-binding Glycoprotein of Human Platelets," <u>J. Clin. Invest.</u> 78:494-501 (1986)
↓	AR	Zimmer and Gruss, "Production of chimaeric mice containing embryonic stem (ES) cells carrying a homoeobox <i>Hox 1.1</i> allele mutated by homologous recombination," <u>Nature</u> 338:150-153 (1989)
	AS	
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SW	AA	5,212,071	5/18/93	Pearson, et al.	435	69.1	
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Sheet 8 of 9

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Attorney's Packet Number
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SW	AR2	Hourcade et al., <u>Adv. Immunol.</u> (1989) 45:381-416
SW	AS2	Klickstein et al., <u>J. Exp. Med.</u> (1988) 168:1699-1717
SW	AT2	Hourcade et al., <u>J. Exp. Med.</u> (1988) 168:1255-1270
AU2		Kryeh et al., <u>Proc. Natl. Acad. Sci.</u> (May 15, 1991) 5 pages total (A Preprint copy is enclosed herewith)
AV2		Wong et al., <u>J. Immunol.</u> (1991) 146:656-662
SW	AW2	Ross et al., <u>Adv. Immunol.</u> (1985) 37:217-267
	AX2	Platt et al., <u>Immunol. Today</u> (1990) 11:450-457
	AY2	Yeh et al., <u>J. Immunol.</u> (1991) 146:250-256
	AZ2	Weissman et al., <u>Science</u> (1990) 249:146-151
	A12	Kotwal et al., <u>Nature</u> (1988) 335:176-178
↓	A22	McNearney, <u>J. Exp. Med.</u> (1987) 166:1525-1535
	A32	
	A42	

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